

months before death, cutaneous lesions like those of mucosis fungoides appeared. At autopsy diffuse pulmonary consolidation and an immense liver abscess were found.

In all, eighteen cases have been reported; in five of these the initial lesions were in the skin, in three of the remainder the skin was later involved; in ten no skin lesions occurred. It will be seen that there is no characteristic set of symptoms constant to the disease; when, however, multiple abscesses or persistent skin lesions or unexplained pulmonary infiltration occurs, the disease should be suspected and search made for the parasite. A drop of the pus under the microscope will reveal typical spherical bodies. As yet no clue has been obtained as to how this infection is carried. Systematic examination of the small animals dying or showing abscesses should be made and thus the mode of transmission of this terrible disease might be found and its spread stopped.

SMALLPOX.*

By C. H. WALKER, M. D., San Jose.

In view of the fact that smallpox is on the increase in our city and other towns and cities of California, I have been asked to prepare a paper, long enough to start a discussion of the subject at least.

Smallpox, like bubonic plague, has carried off its millions of victims, but I shall avoid the history of the disease, only mentioning the last important epidemic, which occurred in Montreal, 1885, and was solely due to the opposition of the French-Canadians to vaccination.

My object tonight as health officer is to deal more particularly with the contagion, invasion and early recognition of the disease, owing to the lack of opportunity of many able physicians to see cases of variola. Mistakes in diagnosis are liable to be made early in the disease. Any eruption not certainly understood should be promptly reported to the health officer as suspicious, thus throwing the responsibility of diagnosis upon that officer, who is or should be qualified for this work. It is the health officer's duty to see that the physician who reports a suspected case of smallpox suffers no loss of confidence from the patient or his friends.

The protection of the physician interests is easily accomplished if the health officer is tactful and ethical as he should be. And the physician in charge should remember that the health officer many times makes personal sacrifices to protect him, and therefore the physicians of a city owe their support in protecting the conscientious health officer in the performance of his duty.

Variola is highly contagious, few persons unprotected by vaccination escaping the disease if freely exposed.

The contagium of smallpox is developed in the body, and given off in the secretions and excretions. The fine epithelial scales are supposed to be the most important factor in conveying the specific elements of the disease. It is generally admitted that

the disease may be transmitted at any time during its course, but is most dangerous to others when supuration is about to commence. However, in rare instances, people have been known to contract the disease from patients while in the incubation stage.

During an epidemic of smallpox public conveniences of all kinds, mail matter, money, etc., are active agents in its spread. It must not be forgotten that varioloid is smallpox modified by vaccination, and is capable of infecting a well person with the most malignant form of smallpox.

Epidemics of smallpox recur at irregular intervals, because long periods of freedom from an epidemic leads to public carelessness, with neglect of vaccination and consequent increase of susceptibility of the population to the disease. At the present time we have in this city a greater variety of eruptive and contagious diseases than at any time during the last five years, viz., scarlet fever, measles, chickenpox, smallpox, la grippe, diphtheria and typhoid fever. While the cases of each are few, they are to be considered, as smallpox may in the early stage resemble any one of these diseases. When there is a severe chill or series of chills, rapid rise of temperature, headache, backache and vomiting, reserve the diagnosis for three or four days, but be sure and isolate the patient. Incubation period is from ten to fourteen days. Occasionally there is a slight rise of temperature, but usually there are no symptoms during the incubation period.

When once the infection enters the system all means to stay the disease are of little benefit, except vaccination and that only in the first four or five days after becoming infected. An exposed person should be vaccinated without delay, and to be sure repeat the operation daily until you see that one is beginning to take, thus taking no chances of failure and losing the opportunity of preventing the disease or at least modifying it.

Invasion—The chill of smallpox is more violent than in any other eruptive disease. As I have said, this may be one long severe chill, or a succession of shorter chills; the temperature rises rapidly until the evening of the third day, the pulse is full and increased in frequency from 110 to 150. The intensity of the constitutional symptoms of the stage of invasion does not always bear a direct relation to the intensity of the disease in its eruptive state. A very acute prodromal stage may be followed by a very mild eruptive state, although this is not the rule. The constitutional symptoms, however, which accompany the eruptive stage correspond in intensity with the extent of the eruption. As soon as the eruption appears and during the papular and vesicular stages, the constitutional symptoms rapidly improve and in mild cases this is the time when the disease is spread around, as the patients usually feel well enough to visit the doctor, or calls on friends or takes a trip on the railroad and insist that there is nothing the matter as they do not feel ill. The writer thinks that these are the most dangerous cases in spreading the disease, and from the viewpoint of the health officer should be dealt with in the most positive manner.

* Read before the Santa Clara County Medical Society on January 15, 1908.

Eruption—This appears on the evening of the third day after the initial fever, or more frequently on the fourth day. The eruption appears first as macules, scarcely raised above the surface; these rapidly change to papules. They are first observed on the forehead, near the border of the hair, and on the wrists and forearms. If the case promises to be a bad one, these macules are so close together as to resemble that of measles. In less than twenty-four hours the eruption appears on the body and limbs. These papules have a "shotty feel" beneath the skin. During the second or third day vesiculation commences, twenty-four hours later umbilication of the vesicles develops, and by the eighth or ninth day the vesicles are transformed into pustule. When the disease has progressed to this stage no physician could possibly fail in diagnosis.

In severe cases many distressing symptoms and complications may appear, such as cough, sore throat, cutting pains in the pustules, injected eyes, photophobia may be extreme and sleeplessness. Desiccation begins on the eleventh or twelfth day and occupies from one to two weeks. The swelling and redness disappear with the drying up of the pustules. The crusts drop off, leaving the surface formerly covered by each crust of a reddish brown hue or of a cyanotic color with elevated edges; this, then, is the course of the ordinary form of smallpox—*variola discreta*.

I shall simply mention some of the other forms, which will probably not be met with during our mild epidemic that seems about to get a footing in San Jose: *Variola confluens*, *variola haemorrhagica*, *Purpura variolosa* and *variola haemorrhagica pustulosa*, these are varieties as their names indicate.

Of the comparisons I shall say nothing.

Diagnosis—In the pustular stage of smallpox, a well-marked, abundant eruption is hard to confuse with any other disease. Its early recognition, however, is not always easy. I have mentioned a few diseases with which smallpox might be confused, but there are others. A few years ago, during a smallpox epidemic in a certain Eastern city, a large number of cases were incorrectly diagnosed and sent by physicians to the smallpox hospital, and these cases represented no less than twenty-five different diseases.

The prodromal eruption of variola is most frequently confused with measles or scarlatina. In measles the eruption appears upon the entire face and back simultaneously, it is preceded by fever, but that fever is associated with marked catarrhal symptoms. The stage of invasion is less severe in all its manifestations. It is not always possible to get a clear history of the prodromal symptoms of smallpox, and further it is not uncommon for the eruption and the later constitutional symptoms to be so mild as to be very deceptive. Even in the mildest cases, however, the few lesions which do exist about the forehead and wrists present the peculiar characteristics of smallpox. They are very hard, shotty papules, they are umbilicated vesicles or they are large, prominent pustules with prominent globu-

lar apices. They appear in the palm of the hand and soles of the feet.

In the vesicular stage smallpox is most likely to be mistaken for chickenpox. In chickenpox the lesions are more abundant on the body, less on the face and extremities; they do not have the characteristic shotty feel and do not umbilicate. Chickenpox vesicles collapse when punctured, smallpox vesicles do not collapse when punctured.

It may seem foolish to mention acne as a confusing factor in making a diagnosis, but when the lesions are discrete and are not abundant confusion with an indurated acne is possible.

In differentiating between any other eruptive disease the "grisolle sign," as described by Moore, may be of some service. If, upon stretching the skin the papule becomes impalpable to the touch, the eruption is not smallpox.

Finally and again, severe chill, intense headache and backache lasting three days, rapid rise of temperature, vomiting and a shotty eruption. Isolate the patient at once. Notify your health officer immediately, and advise all persons in the house to be vaccinated.

Personal Care of the Physician—The doctor should have a long robe, if not, do not remove your hat or overcoat. While in the house he should avoid touching anything except the floor with the soles of his feet. Avoid shaking hands with anybody.

Treatment—Promote elimination, relieve symptoms and sustain your patient.

SOME EXPERIENCES OF A HEALTH OFFICER.*

By H. J. B. WRIGHT, M. D., San Jose.

Garbage—Section 20 of Ordinance 1644 of the City of San Jose reads in part as follows:

"No person shall throw or deposit any garbage or any putrid or stinking animal or vegetable matter or filth upon any lands or creeks in the City of San Jose." Section 45 of this ordinance provides a fine of not more than \$100.00 for a violation of this Section 20.

The health officer of this city finds it incumbent on him to attempt the enforcement of this Section 20 almost daily.

Theoretically, the prompt removal of all garbage from all parts of a city is easily accomplished, but in practice the result often comes short of the theory. Ignorance, indifference, misdirected economy, stubbornness and poverty are important factors tending to prevent a health officer from having all garbage removed before it becomes a menace to the public health. In most cities the board of health formulates plans and makes general rules, but the health officer must take the initiative and become the active agent in the enforcement of sanitary laws.

The following instances will serve to show what difficulties a health officer has to contend with and what mountains of opposition he has to climb in

* Read before the California Public Health Association.